ABSTRACT

A pore- or particle-size distribution measurement apparatus capable of measuring the size of a pore or a particle in a short time with high accuracy, is provided. When the size of a pore (Y) existing in a porous insulator film (3) or the size of a particle in a thin film is measured, a specimen (5) having the insulator film (3) formed on the surface of a substrate (4) is irradiated, from the surface side thereof, with X-rays R at a specified incident angle θ i larger than the total reflection critical angle of the insulator film (3) but not exceeding 1.3 times the total reflection critical angle of the substrate (4). the irradiated X-rays, among components exiting from the insulator film (3) without entering the pore (Y) and scattering of reflection component of the X-rays reflected on the surface of the substrate (4) after having entered the insulator film (3), the scattered component whose exit angle is larger than that of a component of the reflection component which exits from the insulator film (3) without entering the pore (Y) is detected.